

IOWA DEPARTMENT OF ADMINISTRATIVE SERVICES ▼

HUMAN RESOURCES ENTERPRISE

BRIDGE INSPECTOR 1

DEFINITION

Performs paraprofessional engineering work on a specialized team conducting detailed inspections of existing bridges; as a member of the office technical team, reviews/processes inspection data provided by the inspection teams; performs specialized maintenance activities on suspension bridges; performs related work as required.

The Work Examples and Competencies listed are for illustrative purposes only and not intended to be the primary basis for position classification decisions.

WORK EXAMPLES

Assists a team leader in planning, scheduling, and conducting various types of bridge inspections in accordance with the bridge inspection standards applicable for the individual situation and/or condition, including hands-on inspection of fracture-critical members in non-redundant structures.

Inspects various bridge components using visual inspection techniques and various mechanical and electronic devices; such as, magnetic particle and dye penetrant testing equipment, hand grinding tools used to find/evaluate fatigue cracks in steel members, calipers, increment borer and electronic depth finder.

Records the condition of various bridge components including entering bridge inspection data into an electronic records management system.

Prepares sketches and takes photographs showing conditions and/or deficiencies.

Makes and records measurements of dimensions, angles, distances and/or vertical elevations using devices such as a transit, level, surveyor's chain, or tape.

Calculates steel areas for painting contracts.

Observes various components on suspension bridges and advises appropriate staff of any problems found.

Assists in preparing written reports describing bridge conditions and deficiencies.

Researches historical bridge information for staff engineers; such as, design files, old plans, construction records and past inspection data contained in microfiche files.

Conducts quality assurance reviews and processes bridge inspection data provided by field inspection teams.

Designated positions perform duties related to snow and ice removal, which include: accessing the Roadway Weather Information System (RWIS), weather reports and other related computer software applications to record and receive data and make decisions regarding times, temperatures, weather conditions, and material usage to operate snow and ice removal equipment such as, but not limited to: single or tandem axle dump trucks that may be equipped with tailgate or hopper spreader, straight blades or V-plows, and underside ice blades; includes preparing and spreading abrasives and de-icing chemicals on the roadway by using a loader for mixing abrasives and chemicals; may perform other maintenance duties as assigned.

COMPETENCIES REQUIRED

Knowledge of bridge inspection terminology, procedures and techniques.

Knowledge of various bridge elements and how they react with each other.

Knowledge of typical deterioration specific to certain bridge types and components.

Knowledge of bridge inspection reporting requirements to understand which components and physical surroundings to inspect, measure, observe, sketch and photograph.

Knowledge of the occupational hazards and safety precautions applicable to the work.

Ability to understand the contents of bridge plans.

Ability to operate computers and/or other electronic devices and use programs/applications to conduct Department of Transportation business.

Ability to utilize standards, instructions and guidelines applicable to bridge inspection and report preparation.

Ability to compare one bridge element with another through reading, observing and/or measuring so a judgment can be made regarding their condition and load carrying ability.

Ability to condense information yet retain significant findings.

Ability to make accurate mathematical calculations and maintain adequate documentation.

Ability to recognize, identify and assess the extent and significance of structural deterioration, defects and damage in and around bridges and reach conclusions as to cause(s).

Ability to describe bridge conditions and deficiencies as observed.

Ability to illustrate bridge components and structural deficiencies to scale.

Ability to climb and perform inspection duties, using inspection tools and equipment, while in difficult positions and under hazardous conditions such as extreme height, heavy traffic, over or in water, steep slopes, confined spaces, near electric lines, etc.

Ability to drive vehicles in a safe and conscientious manner.

Ability to drive equipment with a manual transmission and clutch.

Ability to climb, kneel, crouch, crawl, stoop and twist and perform duties using appropriate tools and equipment within safety standards.

Ability to walk over uneven ground.

Ability to accurately perform mathematic calculations.

Ability to operate a truck mounted under-bridge access unit from either the basket or control platform.

Ability to operate an air quality monitor.

Ability to work outdoors in all types of weather conditions, day or night, in normal and emergency situations.

Ability to read and write English.

Ability to understand and follow verbal and written directions/instructions given in English.

Ability to occasionally (1-33% of the time) lift/lower, carry and push/pull items weighing up to 75 pounds.

Skill in the operation of engineering survey equipment.

Designated positions will also require the:

Knowledge of effects of weather on road surfaces.

Knowledge of winter maintenance operations, such as anti-icing and de-icing principles.

Ability to appropriately use anti-icing or de-icing materials.

Skill in use of Roadway Weather Information System (RWIS), weather reports and other related computer software applications.

Displays high standards of ethical conduct. Refrains from dishonest behavior.

Works and communicates with all clients and customers providing polite, quality professional service.

Displays a high level of initiative, effort, attention to detail and commitment by completing assignments efficiently with minimal supervision.

Follows policy, cooperates with supervisors and aligns behavior with the goals of the organization.

Fosters and facilitates cooperation, pride, trust, group identity and team spirit throughout the organization.

Exchanges information with individuals or groups effectively by listening and responding appropriately.

EDUCATION, EXPERIENCE, AND SPECIAL REQUIREMENTS

Graduation from an accredited area college with an Associate's Degree in Civil or Construction Engineering Technology plus one (1) year of engineering survey, bridge safety inspection, bridge/road construction inspection, bridge/road maintenance, bridge/road/building construction experience or combination thereof;

OR

an equivalent combination of experience and education substituting one (1) year of the required experience for each year (30 semester hours) of the required education;

OR

employees with current continuous experience in the state executive branch that includes experience equal to two (2) years of full time work in engineering survey, bridge safety inspection, bridge/road construction inspection, bridge/road maintenance, bridge/road/building construction or combination thereof.

NECESSARY SPECIAL REQUIREMENTS

Must successfully complete a Federal Highway Administrative approved comprehensive bridge inspection training course required by the National Bridge Inspection Standards prior to appointment or within a period of time designated by the appointing authority.

Designated positions must possess a valid Commercial Driver's License (CDL) Instruction Permit upon hire. Within 14 calendar days following appointment, a valid Class A Commercial Driver's License must be obtained and maintained with air brake and tanker endorsements in order to continue employment. Other endorsements may also be required.

If a CDL is not designated, all positions are required to have and maintain a minimum of a valid Class C Non-Commercial Operator's License.

In conjunction with Title 49 of the Code of Federal Regulations (parts 40 and 382), designated positions in this job class require a pre-employment drug screen and will require ongoing participation in the employer's random drug and alcohol testing program and will be subject to the regulations regarding the Federal drug and alcohol testing program.

Prior to starting employment, all persons are required to have a post offer pre-employment physical verifying the physical ability to perform the duties described.

NOTES

Employees in designated positions must be able to travel and may be required to stay away from home overnight during assignments.

Within a timeframe as determined by the appointing authority, employees in designated positions are required to reside within 30 minutes driving time, during normal conditions, from assigned work location.

Employees must respond to emergency situations as required.

Employees in designated positions must be able to work up to 16 consecutive hours.

Effective Date: 10/13 BR